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•	1. G			Was flown as					PP&I SUC	SZFD		
				MATERIALS FR				3	TS83			
				F CHEMISTRY I					PSG.			
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	CAMERA SYST	TEMS. THE	NEGATIVES RE	CEIVED THE FO	LLOWING	PROCE	SSIN	}: 	WES			:
	CHEMISTRY	TECHNICAL AL FRAMES	OBJECTIVE AR FRAMES	OPERATIONA CL FRAMES	L OBJECT CR FRA		TERR B FR		N.& P Pun	and the last of th		
	MX-578	718/1598	NONE	NONE	01/99	96	151	/374	DL.	JE 3/4		
	G-14	NONE	01/1556	01/903	NONE	3	01,	/94*	SPA DTA	1)		
• •	BRAND-X	01/717	NONE	NONE	NONE	G	01,	150	OMA		25.	X1
	*THESE	E FRAMES SH	OULD HAVE BE	EN TITLED 375	TO 469	AND C	ONTA	N NO		iandam embelgaleszelhe		•
	USABLE IMAG	ERY FOR TH	IS TEST SINC	E ALL ACQUISI	TIONS WE	RE OV	⊢ ERW#	TER.	ווגעענו	ED CY	<del></del>	
	THE TECHNIC	CAL AND TER	RAIN OBJECTI	VE CAMERAS EM	PLOY TYF	Œ 340	O FII	M		TEXT		1.02
	WHICH RESOI	LVES 65 L/M	M AT A 1.6:1	CONTRAST RAT	IO AND I	HE OP	ERAT]	ONA.		<b>.</b>		خية
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OBJECTIVE CAMERAS EMPLOY TYPE 3404 FILM WHICH RESOLVES 200 L/MM AT
THE SAME CONTRAST RATIO WHEN PROCESSED IN THE SAME CHEMICALS.

TO

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- 2. CLOUDS COVERED LESS THAN 10 PERCENT OF THE IMAGERY AND HAZE WAS MINIMAL ON THIS MISSION.
- 3. NPIC/TSSG WAS TASKED TO DETERMINE WHICH CHEMISTRY PROVIDED
  THE MOST IN TERMS OF INFORMATION CONTENT. PARTICULAR INTEREST WAS TO
  BE GIVEN TO THE HIGHLIGHT AND SHADOW AREAS TO ASCERTAIN IF ONE CHEMISTRY IS SUPERIOR IN EITHER OR BOTH THESE AREAS. TO PERFORM THE
  EVALUATION, SIMILAR IMAGERY WAS CHOSEN ON THE TEOC, OOC, AND TROC
  CAMERAS. SIX TECHNOLOGISTS MADE COMPARISONS OF SIMILAR IMAGERY FROM
  THE SAME OR SIMILAR CAMERAS. EACH OBSERVER SELECTED THE FRAME WHICH
  IN HIS JUDGEMENT PROVIDED THE MOST DETAIL IN TERMS OF INFORMATION CONTENT.
  THE AESTHETIC QUALITY (MOST PLEASING TO THE EYE) OF THE IMAGERY WAS NOT
  A PRIMARY CONSIDERATION. ONLY THE NEGATIVES WERE USED FOR THIS TEST.
  THE OBSERVER INDICATED WHICH FRAME IF ANY, WAS SUPERIOR. THE FOLLOWING
  TABLES LIST THE FRAMES CHOSEN FOR COMPARISON, THE CRITICAL DATA PERTAINING TO EACH FRAME, AND THE NUMBER OF TIMES THAT FRAME WAS PREFERRED

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THE DIFFERENCES IN ALTITUDE AND OBLIQUITY WERE MINIMAL AND ARE NOT CONSIDERED TO BE A FACTOR IN THE COMPARISON.

A. CAMERA - OPERATIONAL OBJECTIVE (CL AND CR)

IN THE TEST.

COMPARISON	CAM.	FR.	ALT. FEET	PROCESS	NUMBER OF TIMES SELECTED AS BEST
1	CR	41	76,800	<b>MX</b> 578	4
1	CL	763	78,000	G4-L	2
2	CR	41	76,800	MX578	6
2	CR	818	78,000	MX 578	0
3	CR	43	76,800	MX578	1
<b>3</b>	CL	42	76,800	G4-L EQUAL	3 2
4	CR	43	76,800	MX578	3
4	CR	818	78,000	MX578	3
5	CR	818 .	78,000	MX578	0
5	CL	42	76,800	G4-L	6
6	CR	84	77,200	MX578	6

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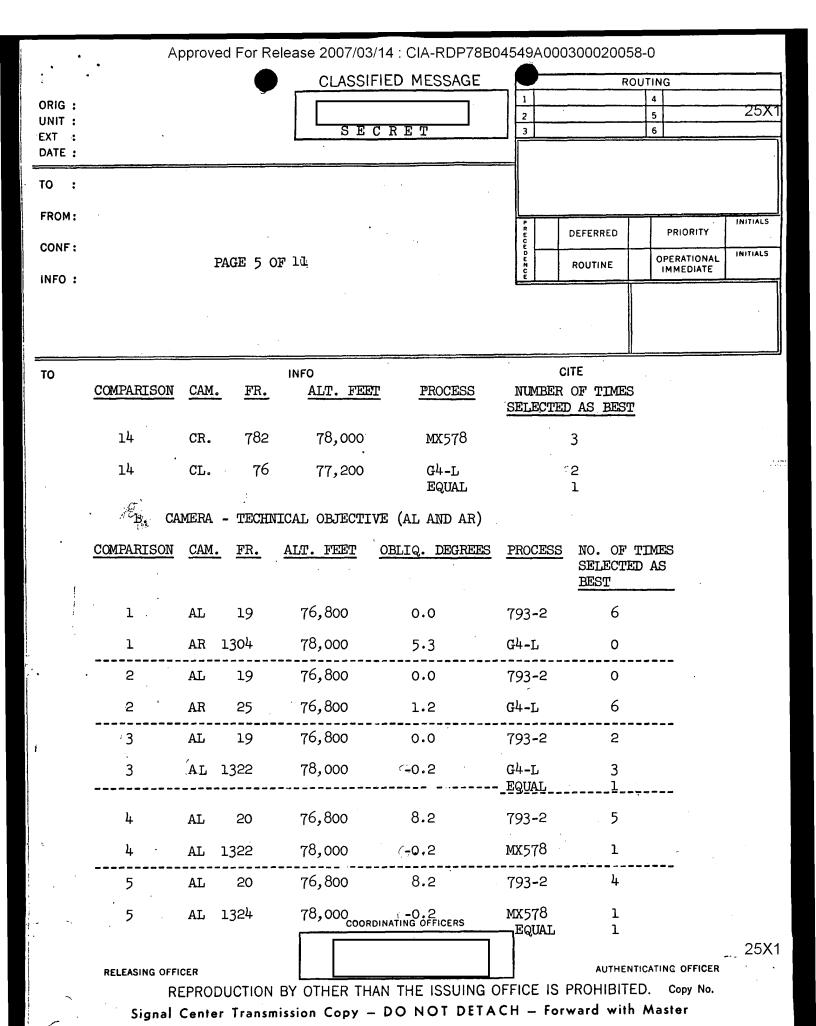
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	COMPARISON	CAM.	FR.	ALT. FEET	· PROCESS			ER OF TIME			
	•					2	ELEC	TED AS BES	Ţ		
	6	CL	726	78,000	G4-L			0			
	7	CR	187	78,000	MX578			6 .			
	7	CL	÷ 626	77,100	G4-L			0			
	8	CR ,	219	7.8,200	MX578			6			
	8	CL ·	594	76,900	G4-L			0		-	
t :	9	CR	219	78,200	MX578			6	_		
	9	CL	596	77,000	. G4-L			0			
	10	CR	305	78,600	MX578			4.		ę	
;	10	CL	510	76,500	G4-L EQUAL			1	. <b>-</b>		
	, <b>11</b>	CR	670	77,000	MX578		¥.	2			
,	11	CL	176	78,100	G4-L EQUAL			3 1 ·			
,	12	CR	766	78,000	MX578			1			
<b>4</b>	12	CL	88	77,400	G4-L EQUAL			2 3			
, 1	13	CR	7 <b>8</b> 0	78,000	MX578			5	-		
<u>.</u>	13	CL	76	77,200 coordinating	G4-L G OFFICERS	_		1			
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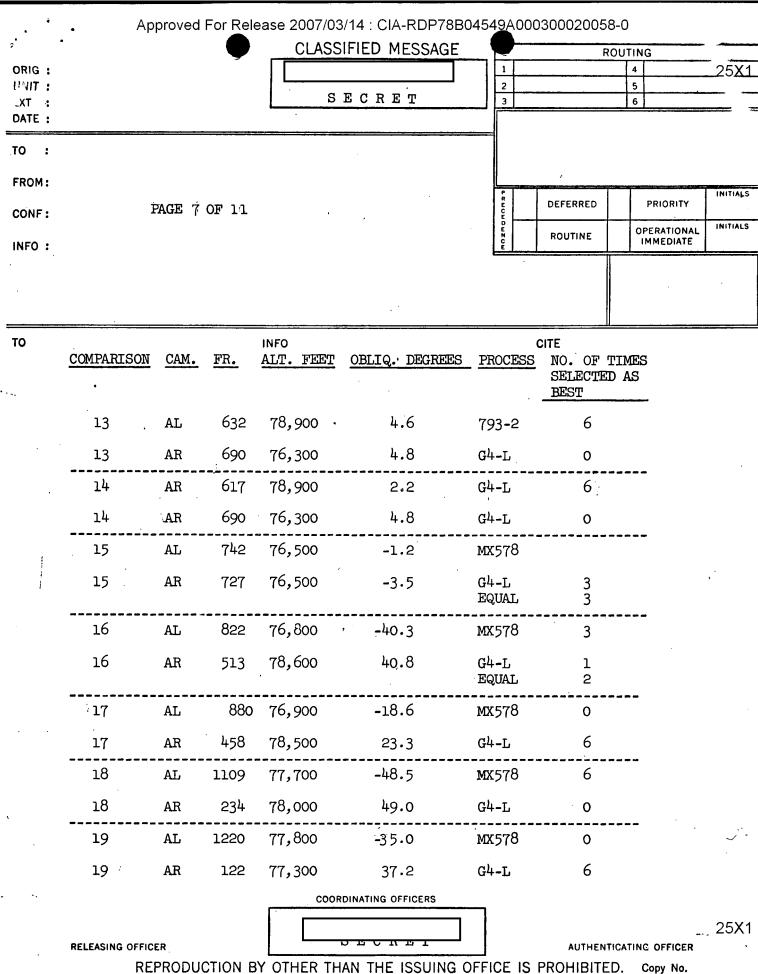
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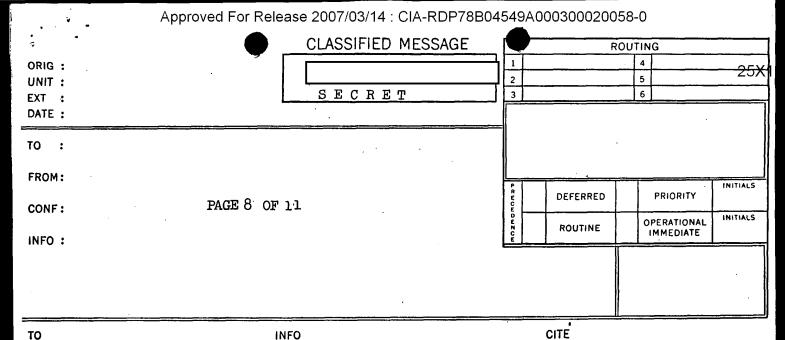
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то	COMPARISON	CAM	. <u>FR.</u>	INFO ALT. FEET	OBLIQ. DEGREES	PROCESS	CITE NO. OF SELECTE BEST		
	6 .	AL	20	76,800 ·	8.2	793 <b>-</b> 2	0		
	6	AR	24	76,800	9.5	G4-L EQUAL	5 1		
	7	AL	1324	78,000	-0.2	мх578	0		
	7	AR	24	76,800	9•5	G4-L	6	-	
	8	AR	25	76,800	1.2	G4-L	6		
	8 .	AR	1304	78,000	5.3	G4-L	Ó		
	9	.AL	98	77,200	8.2	793 <b>-</b> 2	0		
	9	AR	108	77,200	9.5	G4-L	6		
	10	AL	392	78,400	-17.6	793-2	6		
	10	AR	966	77,000	25.4	G4-L	0		-
	11	AL	549	78,800	-41.9	793 <b>-</b> 2	6	,	
	11	AR	766	76,600	42.0	G4-L	0		
	12	AL	632	78,900	4.6	793 <b>-</b> 2	5		r en 1 e×.
	125	AR	617	78,900	2.2	G4-L EQUAL	0 1		
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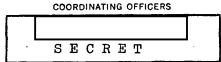
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C. CAMERA - TERRAIN OBJECTIVE (B)

COMPARISON	CAM.	FR.	ALT. FEET	FR. OBLIQ.	PROCESS	NO. OF TIMES SELECTED AS BEST
1	В	115	76,800	VER.*	793 <b>-</b> 2	4
1 .	В	358	78,000	VER.	mx578 equal	1 1
2	В	115	76,800	VER.	793 <b>-</b> 2	6
2	B .	359	78,000	VER.	MX578	0
3	В	358	78,000	VER.	MX578	4
3	В	359	78,000	VER.	mx578 Equal	1 1
4.E	В	119	77,300	VER.	793-2	5
4	В	354	77,800	VER.	мх578	1

- \* VERTICAL
- 4. BASIC IMAGE QUALITY DIFFERENCES ASSOCIATED WITH CAMERA PER-FORMANCE, PRECLUDE ANY ABSOLUTE CONCLUSIONS, RELATIVE TO PROCESSING CHEMISTRY PREFERENCE.
  - 5. GENERAL OBSERVATIONS INDICATE THAT THERE IS NO SIGNIFICANT



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	DIFFERENCE IN INFORMATION CONTENT THAT CAN BE DIRECTLY ATTRIBUTED	
	TO THE PROCESSING. DETAIL IN THE HIGHLIGHT AND SHADOW AREAS DOES	

TO THE PROCESSING. DETAIL IN THE HIGHLIGHT AND SHADOW AREAS DOES

NOT APPEAR TO BE INFLUENCED BY THE CHEMISTRY. THE EXPOSURE AND

PROCESSING OF ALL THE MATERIAL APPEARS SOMEWHAT SUPERIOR TO PRE
VIOUS MISSIONS. THE STATISTICAL DATA INCLUDED IN THIS REPORT IS RE
QUESTED BY

IND MAY BE USED BY THE DIA FOR FURTHER ANALYSIS.

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- 6. EVALUATION OF THE REPRODUCTIONS ARE NOT INCLUDED AS PART OF THIS REPORT SINCE IT BECAME OBVIOUS DURING THE EVALUATION OF THE NEGATIVES THAT MEANINGFUL CONCLUSIONS COULD NOT BE DERIVED BECAUSE OF THE CAMERA INDUCED DEGRADATIONS.
- 7. IF A SIMILAR TEST IS CONDUCTED, IT IS RECOMMENDED THAT THE FOLLOWING CRITERIA BE USED IF POSSIBLE:
  - A. FLY A RECIPROCAL ROUTE ALONG THE SOLAR AZIMUTH.
  - B. MAINTAIN A CONSTANT EXPOSURE FOR THE EMULSIONS USED.

    DO NOT MODIFY THE EXPOSURE TO COMPENSATE FOR PROCESSING.

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- C. SLIT THE 9.5 INCH MATERIAL, BOTH THE TECHNICAL AND TERRAIN, INTO THREE PARTS. THE CENTER SECTION SHOULD BE 70 MM WIDE AND THE TWO OUTSIDE SECTIONS SHOULD BE APPROXIMATELY 79 MM WIDE. ASSUMING THE MISSION TO CONTAIN 1,500 TECHNICAL OBJECTIVE FRAMES:
  - (1) THE FIRST 500 FRAMES OF THE CENTER SECTION OF THE SLIT MATERIAL SHOULD BE PROCESSED IN MX-578. THE SECOND 500 FRAMES IN G-4 CHEMISTRY AND THE LAST 500 FRAMES IN BRAND-X.
  - (2) THE FIRST 500 FRAMES OF THE SLIT MATERIAL THAT NORMALLY CONTAINS THE TITLED EDGE SHOULD BE PROCESSED IN G-4. THE SECOND 500 FRAMES IN BRAND-X AND THE LAST 500 FRAMES IN MX-578.
  - (3) THE FIRST 500 FRAMES OF THE SLIT MATERIAL THAT

    NORMALLY CONTAINS THE UNTITLED EDGE SHOULD BE PROCESSED IN

    BRAND-X. THE SECOND 500 FRAMES IN MX-578 AND THE LAST 500

    EPAMES IN G. A. SUCH A PROCEDURE WILL MINIMIZE CAMERA OR

FRAMES IN G-4. SUCH A PROCEDURE WILL MINIMIZE CAMERA OR COORDINATING OFFICERS

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VEHICLE DEGRADATIONS AS WELL AS OTHER ENVIRONMENTAL
CHANGES THAT THE SYSTEM MAY BE SUBJECTED TO FROM INFLUENCING THE RESULTS OF THE PROCESSING ANALYSIS.

- (4) MAKE ALL REPRODUCTIONS ON 70 MM PRINT STOCK.

  REPRODUCTION OF THE TWO OUTSIDE SECTIONS SHOULD PROVIDE

  IMAGERY ADJACENT TO THE CENTER SECTION WITH NO TITLED OR

  UNTITLED EDGES ON THE REPRODUCTION. THE HEAD AND TAIL

  IDENTS CAN IDENTIFY THE INCLUSIVE FRAME NUMBERS AND NO

  TITLING WILL BE REQUIRED.
- D. IT IS IMPRACTICAL TO SLIT THE 70 MM MATERIAL FROM THE OPERATIONAL OBJECTIVE CAMERA SYSTEMS; IT IS THEREFORE SUGGESTED THAT THE CHEMISTRY BE CHANGED EVERY 100 FRAMES THUS PROVIDING SUFFICIENT VARIATIONS IN PROCESSING THROUGHOUT THE MISSION.

- END OF MESSAGE -

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